



Ray Lee

SQL



Schedule

- Resources
- Certificate (MTA98-364)
- DBMS
 - Why?
 - Data Models
- Quiz

Resources

- Resources? Get better? Sign up and JUST DO IT.
 - Google
 - [HackerRank](#) / [Leetcode](#)
 - [W3Schools](#)
 - [Udemy](#) (limited time Black Friday Deal now! 10-15USD per course)

Certificate (MTA98-364)

- [Exam 98-364: Database Fundamentals](#)
- [Exam skill outline](#)
- **\$127 USD***
- **Languages:** *English, Chinese (Simplified), Chinese (Traditional), French, German, Italian, Japanese, Korean, Portuguese (Brazil), Russian, Spanish, Spanish (Mexico)*
- **Retirement date:** 06/30/2022**
- Skills measured
 - Understanding core database concepts (20–25%)
 - Create database objects (20–25%)
 - Manipulate data (25–30%)
 - Understand data storage (15–20%)
 - Administer a database (10–15%)

DBMS

- Database
 - (n.) a structured set of data held in a computer, especially one that is accessible in various ways.
 - Analogy:
 - record > paper > section > chapter > book > shelf > library
 - record > file > folder > disk > computer > database > server
- What's DBMS?
 - Database Management System

DBMS

- Why ?
 - Convenient: predefined query
 - Integrity: Easy to maintain
 - Redundancy: Memory used to be expensive!
 - Information/ Cyber Security
 - Popular: 1974 first appearance of SQL
 - Applications: Facebook (MySQL), Bank transactions, e-Commerce

DBMS

- Data Models
 - Relational Data Model
 - Entity-Relationship Model

DBMS

Relational Data Model

- Schema
 - (n.) a representation of a plan or theory in the form of an outline or model

Table also called Relation

Primary Key

Domain
Ex: NOT NULL

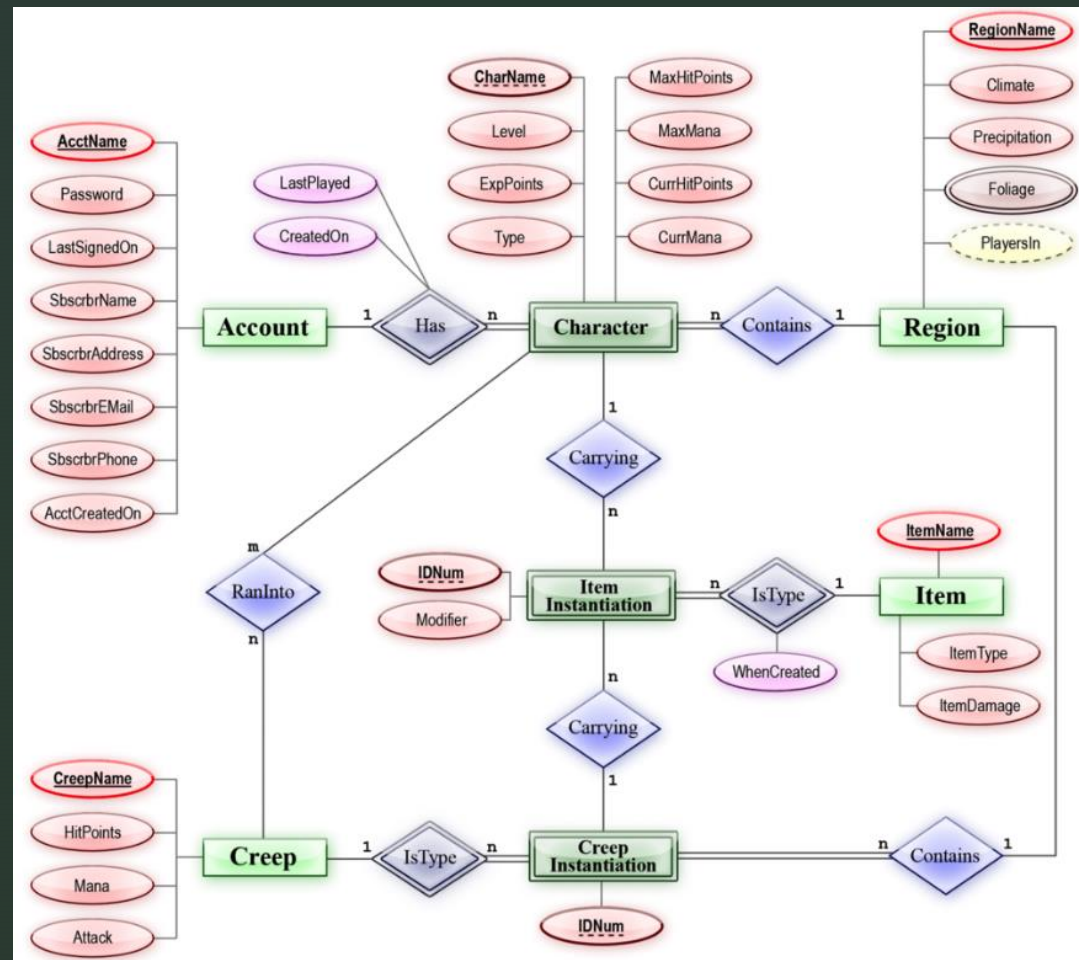
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CustomerID	CustomerName	Status
1	Google	Active
2	Amazon	Active
3	Apple	Inactive

Tuple OR Row
Total # of rows is **Cardinality**

Column OR Attributes
Total # of column is **Degree**

DBMS Entity-Relationship model

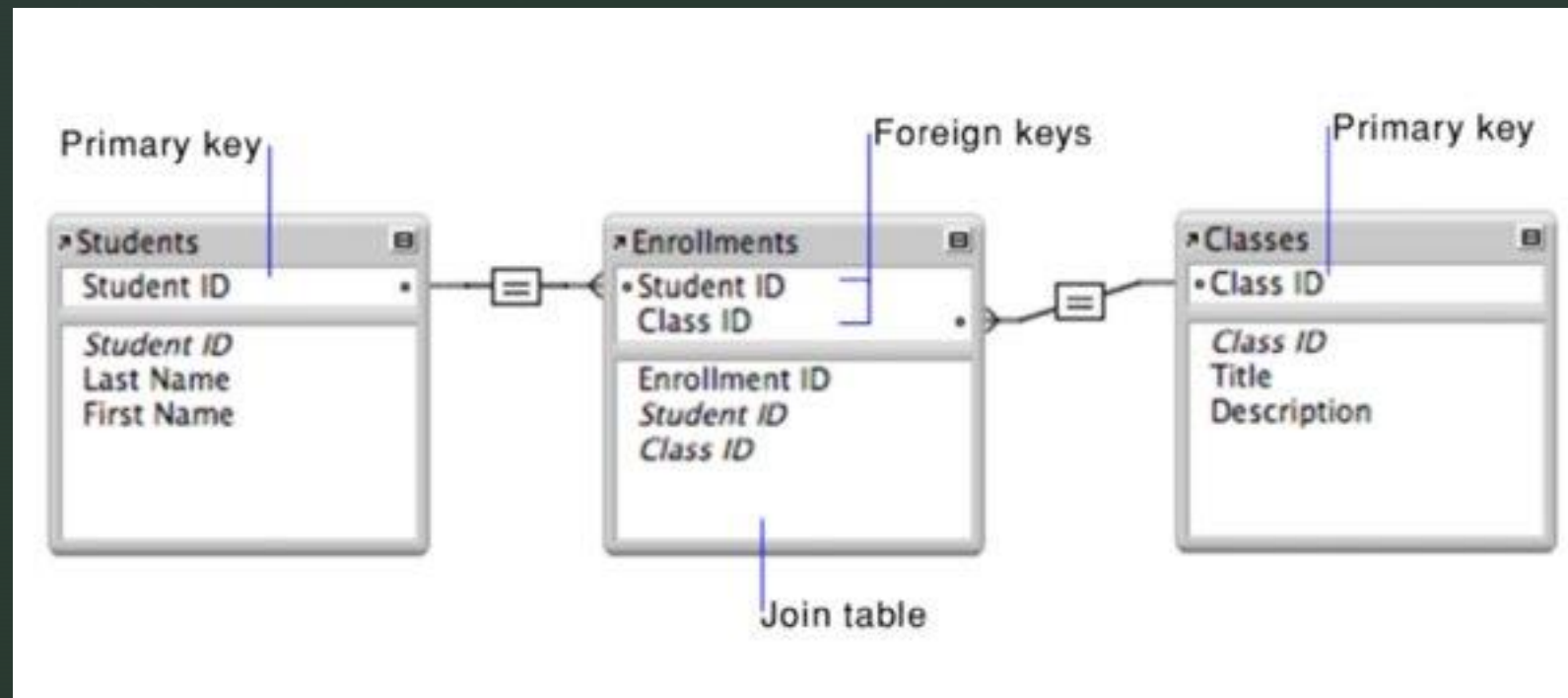


DBMS

- Primary Key
 - (n.)The **PRIMARY KEY** constraint uniquely identifies each record in a table. **Primary keys** must contain UNIQUE values, and cannot contain NULL values.
- Foreign Key
 - A foreign key is a **column or group of columns in a relational database table** that provides a link between data in two tables. It acts as a cross-reference between tables because it references the primary key of another table, thereby establishing a link between them.

DBMS

Primary Key & Foreign Key





Quiz

- Can a table not have primary key?

Quiz

Customers

<u>Customer_ID</u>	Name	Age	Ph_no
101	Prashant	34	12345
102	Anmol	32	54321
103	Rahul	37	21345
104	Harry	34	32145
105	James	32	41235

Products

<u>Product_ID</u>	Name	Price
051	Burger	5\$
052	Pizza	8\$
053	Ice cream	3\$
054	Cold drink	3\$
055	Milk	3\$

Foreign Keys

Orders

<u>Customer_ID</u>	<u>Product_ID</u>	Order_Quantity
101	053	2
105	053	3
108	051	5
101	052	1
105	051	2

Homework(?)

- Composite Key?
- Compound Key?